

experience. Nevertheless, as we stated in our article, Doppler ultrasonography of extracranial arteries should be the basis for choosing the proper cannulation site in all elective patients in whom carotid cannulation is planned. Among almost 250 elective patients with aortic aneurysm in whom Doppler ultrasonography was performed prior to surgery, we saw no significant carotid arteriosclerosis of both sides in any patients.

Furthermore, we do not agree with the letter's authors that carotid artery cannulation eliminates the circulation through the vertebral artery during antegrade perfusion. Cannulation of the right carotid artery provides the same right vertebral perfusion as does cannulation of the right axillary artery. However, as we have demonstrated, it remains questionable whether additional perfusion of the vertebral artery during unilateral cerebral perfusion under moderate hypothermia is even necessary.

Dr AK and Dr Dogan believe that axillary artery cannulation is superior to carotid artery cannulation even though they recognized that several, partly life-threatening, complications related to axillary cannulation have been reported. Also, they do not even mention that axillary cannulation is not always possible and a switch to other cannulation sites is necessary in some cases. In our present, overall experience with almost 300 carotid artery cannulations, no switch to another cannulation site was necessary in any patient, and no vascular, local neurologic, or wound complications were observed. The overall stroke rate was 1%. Despite these results we do not intend to suggest that carotid cannulation is superior to axillary cannulation; let the surgical experience speak for itself.

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Limitations with transapical aortic cannulation in type A aortic dissection: What about aortic regurgitation and cardiopulmonary bypass time?

To the Editor:

I read with great interest the recent article by Dr Wada and colleagues¹ detailing their experience with transapical cannulation in type A dissection (n = 138; 22.5% with significant aortic regurgitation). In their Methods section, they list the following contraindications to this technique: severe aortic stenosis, prior aortic valve replacement, and certain reoperation cases, presumably with dense adhesions.

What about the impact of significant aortic regurgitation that occurred commonly in this study?^{2,3} Baseline significant aortic regurgitation in the setting of transapical cannulation would be expected to cause significant retrograde flow into the left ventricle. The consequences could be inadequate forward flow with vital organ ischemia, left ventricular distention with inadequate myocardial protection, and/or excessive left ventricular vent return.

The authors conducted this cannulation technique with echocardiographic guidance. Clearly, the degree of aortic regurgitation and ventricular distention could be precisely monitored with transesophageal echocardiography. Careful review of their article does not reveal their management strategy for these important considerations.

Last, a possible disadvantage of this technique is the inability to clamp the ascending aorta during cooling, which represents lost operative time and, as a consequence, extended cardiopulmonary bypass time with added risk for morbidity. The authors do not present their cardiopulmonary bypass times in their article.

I would greatly appreciate feedback from the authors about these intraoperative considerations.

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Reply to the Editor:

I would like to answer Dr Augoustides' questions regarding possible aortic regurgitation, the disadvantage of not clamping the aorta, and the prolongation of operative time with our technique.

In fact, the degree of aortic regurgitation decreased during cardiopulmonary bypass with transapical aortic cannulation. We do not know the exact mechanism, but this certainly has been our experience. Type A aortic dissection causes detachment of the commissures of aortic cusps and prevents central coaptation, resulting in aortic regurgitation. The aortic flexible cannula located in the center of the aortic valve during cardiopulmonary bypass may enhance coaptation of the leaflets. We could observe by transesophageal echocardiography that the degree of aortic regurgitation was decreased.

We consider the inability to clamp the ascending aorta during cooling not particularly disadvantageous. Rather, we prefer the no-clamp technique during cooling on cardiopulmonary bypass to avoid undue pressurization or malperfusion of the aortic false lumen. Our mean cardiopulmonary bypass time was already presented in our article; it was 233 ± 68 minutes (median, 222 minutes).

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Transapical aortic cannulation: The technique of choice for type A dissection

To the Editor:

We congratulate Dr Wada and colleagues for their excellent and extensive experience in transapical aortic cannulation for type A dissection.¹ Although first described more than 35 years ago,² transapical aortic can-